REMARKS

Claims 1-2 and 4-7 remain pending after amendment.

Specification Amendments

Table 1 at page 12 of the specification is amended to revise the headings to be consistent with the description at the bottom of page 11 (i.e., melting temperature, acid value, DSC temperature, penetration, melting ratio, and containing parts). No new matter is added by this amendment.

Claim Amendments

By this amendment, claim 3 is cancelled and the limitations thereof added to claim 1. No new matter is added by this amendment.

Objection to Specification

The Examiner objects to the material previously added to the specification as being an improper incorporation. In response, applicants state of record that the material previously added does not constitute new matter, and that the material added is previously incorporated by reference.

Applicants also submit herewith a copy of JIS K 2235-5.4 for the record as required by the Examiner. The copy of JIS K 2235-5.4 is the same material incorporated by reference in the referencing application.

The objection is thus moot and should be withdrawn.

Allowable Subject Matter

While not specifically so indicated, the subject matter of claim 3 appears to be allowable as claim 3 is not rejected over the cited prior art. In view of the accompanying amendments and remarks, all claims are now believed to be directed to allowable subject matter.

Rejection of Claims 1, 2 and 4-6 under 35 USC 103(a)

Claims 1, 2 and 4-6 stand rejected under 35 USC 103(a) as being unpatentable over JP '338 in view of Diamond. This rejection is respectfully traversed.

In response, the limitations of non-rejected claim 3 are incorporated into claim 1.

The rejection is thus believed to be moot and should be withdrawn.

Rejection of Claims 1, 4 and 5 under 35 USC 102(b)

Claims 1, 4 and 5 stand rejected under 35 USC 102(b) as being anticipated by JP '642. This rejection is respectfully traversed.

In response, the limitations of non-rejected claim 3 are incorporated into claim 1.

The rejection is thus believed to be moot and should be withdrawn.

Rejection of Claims 1, 2 and 4-6 under 35 USC 103(a)

Claims 1, 2 and 4-6 stand rejected under 35 USC 103(a) as being unpatentable over JP '642. This rejection is respectfully traversed.

In response, the limitations of non-rejected claim 3 are incorporated into claim 1.

The rejection is thus believed to be moot and should be withdrawn.

Double Patenting Rejection

Claims 1-6 further stand provisionally rejected on the ground of obviousness-type double patenting over claims 1-6 of co-pending application No. 10/805,206.

In response, Applicants submit herewith a Terminal Disclaimer directed to co-pending Application No. 10/805,206. The rejection is now moot and should be withdrawn.

The application is accordingly believed to be in condition for allowance, and an early indication of same is earnestly solicited.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under § 1.17; particularly, extension of time fees.

Respectfully submitted,

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TCB/JWH/ej

Attachment: Translation of JIS K 2235.5.4
Terminal Disclaimer

UDC 665.772

JIS

JAPANESE INDUSTRIAL STANDARD

Petroleum waxes

JIS K 2235—1991

Translated and Published

by

Japanese Standards Association

(4) Average two measured values obtained from the same sample, round off it to one place of decimal and the result shall be the melting point of the sample.

5.3.2.4 Precision The precision shall be as follows:

(1) Repeatability When the same sample is tested 2 times by changing the day or the time with the same tester by the same person in the same laboratory, the difference of test results shall not exceed 1.0°C.

(2) Reproducibility When two different persons test individually once the same sample in a different laboratory with a different tester, the difference of test results shall not exceed 1.3°C.

5.4 Penetration testing method

5.4.1 Outline of test method After melting sample by heating, take it into a sample vessel. After standing to cool, keep it at a fixed temperature in a thermostatic water bath and let the specified needle, the total mass of which is made to be 100 g, penetrate vertically into the sample for 5 sec. Measure the penetrated depth of needle to the nearest 0.1 mm and express the penetration of sample by the numerical value (absolute number) obtained by multiplying it 10 times.

Remarks: This method shall be applied to the wax of 250 max. in penetration.

5.4.2 Penetration tester It shall be composed of (1) to (9) as follows:

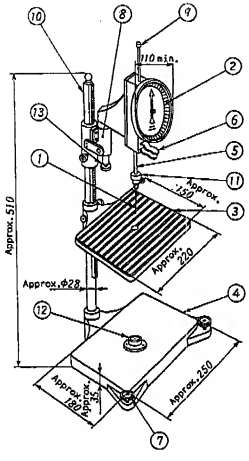
(1) Penetrator The penetrator, which has the structure given in Fig. 2, is composed of the drop mechanism part(5) with lock metals capable of penetrating the needle vertically into a sample by dropping it together with a holding device and a dead weight, the dial gauge capable of measuring the penetrated depth of the needle to 0.1 mm (however, its scale is graduated by taking 0.1 mm of the travel distance of a rack as 1), the dial gauge arm equipped with the fine adjusting mechanism necessary for making the needle point contact the surface of sample, the test rack capable of vertically moving, a level, the stand with a level adjust screw, etc.

Note (5) The drop mechanism part shall be so constructed that the holding device equipped with the needle and the dead weight can be dropped only while the lock metals are pressed, and further, the friction resistance to drop is extremely little.

Remarks: The penetrator specified in 6.3 of JIS K 2207 can be used.

Fig. 2. Penetrator (an example)

Unit: mm



① Needle
② Dial gauge
③ Test rack
④ Stand
⑤ Holding device
⑥ Lock metals
⑦ Level adjust screw
⑧ Dial gauge arm
⑨ Penetration measuring rack
⑩ Stanchion
⑪ Dead weight
⑫ Level
⑬ Fine adjusting mechanism

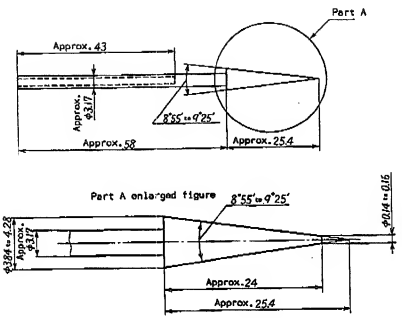
(2) Needle It is the needle of stainless steel or steel having the hardness equal or superior thereto, with the shape and dimensions given in Fig. 3. It shall weigh 2.5 ± 0.05 g.

Further, the grinding surface roughness of conical part shall be of 0.2 μm max.

Remarks: The diameter of needle point shall be measured according to JIS B 7150, and the surface roughness of conical part shall be measured according to JIS B 0651.

Fig. 3. Needle

Unit: mm



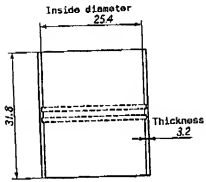
(3) Holding device It is the metallic tube, holding a needle and a dead weight, attached to the drop mechanism of a penetrator. It shall weigh 47.5 ± 0.05 g.

(4) Dead weight It is the brass annular dead weight attached to a holding device. It shall weigh 50 ± 0.05 g.

(5) Sample vessel It is the brass cylinder with the shape and dimensions given in Fig. 4, and 1 to 2 grooves (rounding line) are provided at the central part of its inside wall to prevent the slipping down of sample.

Fig. 4. Sample vessel (an example)

Unit: mm



(6) Brass plate The brass plate, which is used as the bottom plate of a sample vessel when the sample is prepared, shall be about 65 mm in length, about 40 mm in width and 6 to 7 mm in thickness, and its surface shall be smoothly finished.

(7) Thermostatic water bath It is the water bath made of glass or the water bath with the glass window(7) capable of observing the horizontality of sample vessel, of 10 l min. in capacity capable of regulating and keeping the bath temperature within test temperature(6) ±0.1°C, which is equipped with both a perforated stand for test at a position of 50 mm min. in depth from the surface of bath solution and a perforated stand for immersing the sample vessel at a position of 100 mm min. in depth from the surface of bath solution and 50 mm min. from the bottom.

Notes (6) The test temperature shall be 25°C or 35°C.

(7) The glass window shall be attached at the position capable of observing the sample vessel put on the perforated stand for test from its side surface.

(8) Thermometer It is No. 58 (SOP) in thermometer number specified in JIS B 7410.

(9) Second watch It is the stopwatch or electric timer of ± 0.1 sec per 60 sec in accuracy and 0.1 sec in minimum scale.

5.4.3 Reagents

(1) Release agent It is the mixture by the same amounts of gylcerol specified in JIS K 8295 and water, or silicone oil.

5.4.4 Preparation of sample The preparation of sample shall be carried out as follows:

(1) Heat a sample to a temperature of about 17°C higher than its melting point, and melt it. In this case, to prevent partial overheat and to make the quality of molten sample uniform, slowly mix it by stirring at times.

(2) After thinly coating release agent on the upper surface of a brass plate, heat it to a temperature of about 3°C higher than the melting point of the sample.

(3) Put two pieces of cork stoppers (No. 16 or No. 18) side by side on a horizontal stand and put the brass plate prepared in (2) thereon making the release agent coated surface upward.

Then, after putting a sample vessel on the brass plate, pour the molten sample to a degree that it swells over the upper brim of the sample vessel and let it stand to cool as it is at room temperature(8) for 1 h.

Note (8) Room temperature is preliminarily regulated at 22 to 26°C. When room temperature can not be regulated, the operation of (3) is carried out in a suitable air bath capable of keeping the bath temperature at 22 to 26°C.

Remarks: For a very hard sample, it may happen that the sample shrinks during standing to cool and separates apart from the inside wall of sample vessel. In such a case, the sample in a sample vessel is retained by a wedge.

(4) After standing to cool, scrape off the sample swelled out over the upper brim of sample vessel with a knife, flatten it and remove the sample vessel from the upside of the brass plate.

Then, put it on the sample vessel immersing perforated stand in the thermostatic water bath kept at test temperature(6) ±0.1°C making the sample surface contacted with the brass plate upward and let it stand for 1 h.

5.4.5 Procedures of test The procedures of test shall be as follows:

(1) Establish a penetrator so that the dial gauge of penetrator and the drop mechanism with lock metals may be located on the test perforated stand of thermostatic water bath. In that case, allow the stand of penetrator and the test rack to be reverse, and put a suitable dead weight on the stand as required in order to keep the balance of the whole penetrator.

Remarks: The penetrator may be set up in thermostatic water bath. Further, the small water bath in which the water of thermostatic water bath is circulated, is put on the test rack of a penetrator and may be used instead of the testing perforated stand of thermostatic water bath. In that case, the temperature of the small water bath shall be measured just before the test and confirmed to be within test temperature(6) ±0.1°C.

(2) After making the penetrator and the testing perforated stand of thermostatic water bath horizontal, transfer the sample vessel in thermostatic water bath onto the testing perforated stand to make the sample surface contacted with the brass plate upward.

(3) After confirming that the sample vessel has been kept horizontally on the testing perforated stand, regulate the water level of thermostatic water bath so that the upper surface of sample may be located at about 25 mm below the surface of bath solution.

(4) Attach the clean and dried needle and dead weight to a holding device. Then, make the penetrator-measuring rack engaged with the pinion of the dial gauge of penetrator to be in a fully drawn up state and adjust the pointer of dial gauge to the zero scale. Quietly push up the holding device until it comes in contact with the penetrator measuring rack to be stopped([9]).

Note ([9]) While the holding device is pushed up, the lock metals are continuously pushed.

(5) Regulate the position of dial gauge arm and make the point of the needle to come almost in contact with the surface of sample. Thereafter, fix the stanchion traveling part of dial gauge arm.

(6) After confirming that the penetrator and the sample vessel are kept horizontally, regulate the fine adjusting mechanism of dial gauge arm so that the point of needle comes in contact with the shadow of the point of the needle reflected on the surface of sample, and make the point of the needle come in contact with the surface of sample.

(7) After 5 min, push the lock metals of penetrator and make the needle penetrate into the sample for 5 sec([10]).

Note ([10]) To keep the penetration time accurate, start to move the second watch before the start of test. When the second needle indicates the arbitrary scale, push the lock metals, intrude the needle into the sample, and release the holding device accurately after 5 sec.

(8) Quietly push down the penetrator measuring rack of dial gauge. When stopped because of coming in contact with the holding device, read the indication degree of dial gauge to the nearest 0.5.

(9) Repeat the operation of (6) to (8) four times concerning the same sample.

Allow each measuring point to be circumferentially located 3.2 mm min. apart from the surrounding wall of sample vessel and to be nearly equal distance of 12.7 mm min. each other.

After each-measurement, wipe the needle toward its point with a clean dried gauze or the like to remove the sample adhered to the needle.

(10) Average four measuring values, round off it to an integer to be the penetration of sample and record it together with the test temperature([6]).

5.4.6 Precision The precision shall be as follows:

(1) Repeatability When the same sample is tested two times by changing the day or the time with the same tester by the same person in the same loboratory, the difference of test results shall not exceed the tolerance given in Table 4.

(2) Reproducibility When two different persons test indivisually once the same sample in a different laboratory with a different tester, the difference of two results shall not exceed the tolerances shown in Table 4.

Table 4. Precision

Penetration	Repeatability	Reproducibility
0 or more up to and incl. 30.	2	4
31 or more up to and incl. 250	0.08A	0.15A

Remarks: This A is the test result on smaller side.

5.5 Reaction test method It shall be in accordance with JIS K 2252.

5.6 Oil content test method

5.6.1 Outline of test method Dissolve 1 g of a sample in 15 ml methyl ethyl ketone, cool it at -32°C, filter the deposited wax, evaporate the solvent in filtrate, measure the mass of residual oil, and calculate the oil content.

Remarks: This method is applied to the wax of 37°C min. in melting point and 15 % max. in oil content. However, it cannot be applied to the wax which forms layers because of inferior compatibility when dissolved in methyl ethyl ketone.

5.6.2 Oil content tester It shall be composed of following (1) to (9).

(1) Filter It shall be the filter specified in Fig. 130 (oil content test filter) of JIS K 2839. However, the size of pore of a filter plate shall be 10 to 15 μm when it is measured in accordance with the following procedures by using the apparatus assembled as given in Fig. 5.

The filter plate is sufficiently washed in the order of concentrated hydrochloric acid and water, and rinsed with acetone. After naturally drying it for several minutes, it is dried for 30 min in the oven kept at 105 to 110°C. Then, the filter plate is immersed into water and completely wetted. Thereafter, it is assembled into the apparatus given in Fig. 5 and is immersed into water until the upper surface of filter plate comes just below the water surface while feeding clean compressed air gradually. The air pressure is increased to a pressure of 1.33 kPa {10 mmHg} lower than the estimated pressure of the generation of foam. Then, the pressure is increased by a rate of about 0.40 kPa {3 mmHg} per minute, and when the first foam is separated from the under surface of filter plate, the scale of the mercury manometer is read.